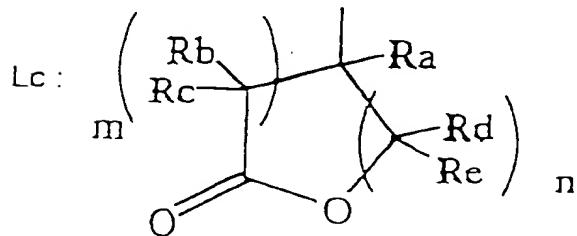
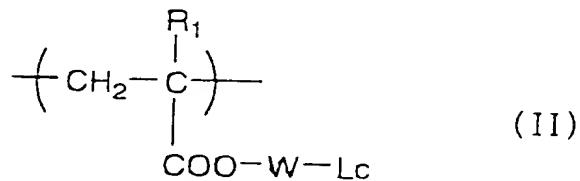
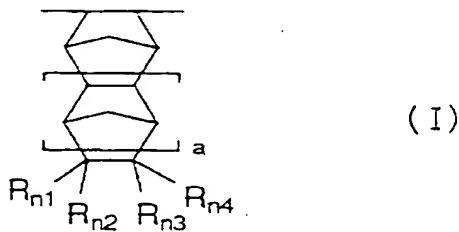


WHAT IS CLAIMED IS:

1. A positive photoresist composition comprising:
 - (A) a resin which contains a repeating unit represented by the following general formula (I) and a repeating unit represented by the following general formula (II), and whose dissolving rate toward an alkaline developing solution is increased by the action of an acid, and
 - (B) a compound which generates an acid upon irradiation with an actinic ray or a radiation,

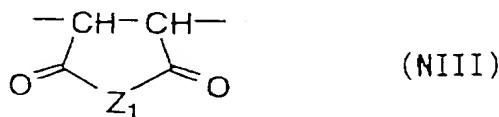


wherein in the formula (I), R_{n1} to R_{n4} each represents a hydrogen atom or an alkyl group which may have one or

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more substituents; and a is 0 or 1; and in the formula (II), R₁ represents a hydrogen atom or a methyl group; W represents one group or a combination of two or more groups each selected from the group consisting of a single bond, an alkylene group, an ether group, a thioether group, a carbonyl group, and an ester group; R_a, R_b, R_c, R_d, and R_d each independently represents hydrogen atom or an alkyl group having 1 to 4 carbon atoms; m and n each independently represents an integer of 0 to 3, and m+n is from 2 to 6.

2. The positive photoresist composition according to claim 1, wherein the resin (A) further contains a repeating unit represented by the following general formula (NIII),



wherein Z₁ represents -O- or -N(R_n₆)-, wherein R_n₆ represents a hydrogen atom, an alkyl group, a haloalkyl group, a hydroxyl group or -OSO₂-R_n₇, and R_n₇ represents an alkyl group, a haloalkyl group, a cycloalkyl group or a camphor residue.

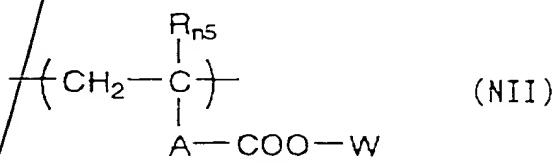
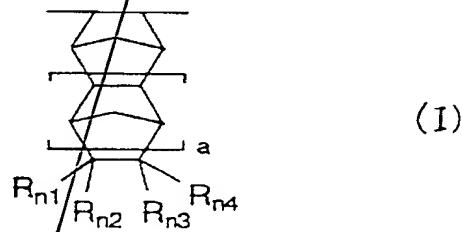
3. The positive photoresist composition according to claim 1 or 2, which further comprises (C) an organic basic compound and (D) a fluorine-type and/or

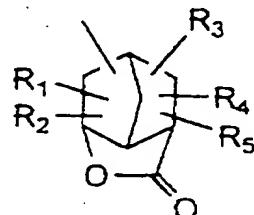
silicon-type surfactant.

4. A positive photoresist composition comprising:

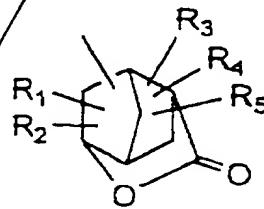
(A1) a resin which contains a repeating unit represented by the following general formula (I), a repeating unit represented by the following general formula (NII) and a repeating unit having a group represented by any of the following general formulae (I-1) to (I-4), and whose dissolving rate toward an alkaline developing solution is increased by the action of an acid, and

(B) a compound which generates an acid upon irradiation with an actinic ray or a radiation,

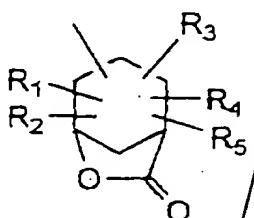




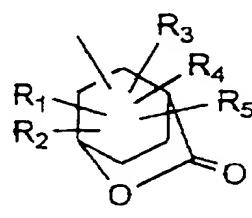
(I-1)



(I-2)



(I-3)



(I-4)

wherein in the formula (I), R_{n1} to R_{n4} each represents a hydrogen atom or an alkyl group which may have one or more substituents; and a is 0 or 1;

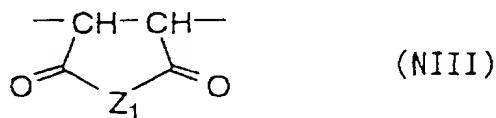
in the formula (NII), R_{n5} represents a hydrogen atom or a methyl group; A represents one group or a combination of two or more groups each selected from the group consisting of a single bond, an alkylene group, a cycloalkylene group, an ether group, a thioether group, a carbonyl group and an ester group; W represents a group represented by -C(R_{na})(R_{nb})(R_{nc}) or a group represented by -CH(R_{nd})-O-R_{ne}, wherein R_{na}, R_{nb}, and R_{nc} each represents a linear or branched alkyl group having 1 to 20 carbon atoms or an alicyclic hydrocarbon group which may have a halogen atom, an alkyl group, an alkoxy group, an alkoxy carbonyl group, an acyl group or an acyloxy group as a substituent, provided that R_{na} and

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Rnb may be bonded to each other to form an alicyclic ring together with the carbon atom to which the groups are commonly attached and, in this case, Rnc is an alkyl group having 1 to 4 carbon atoms; Rnd represents a hydrogen atom or an alkyl group; Rne represents a linear or branched alkyl group having 1 to 20 carbon atoms or an alicyclic hydrocarbon group which may have a halogen atom, an alkyl group, an alkoxy group, an alkoxy carbonyl group, an acyl group or an acyloxy group as a substituent;

in the general formulae (I-1) to (I-4), R₁ to R₅ each independently represents a hydrogen atom, or an alkyl group, a cycloalkyl group or an alkenyl group which may have one or more substituents, and two of R₁ to R₅ may be bonded to each other to form a ring.

5. The positive photoresist composition according to claim 4, wherein the above resin (A1) further contains a repeating unit represented by the following general formula (NIII),



wherein Z₁ represents -O- or -N(Rn₆)-, wherein Rn₆ represents a hydrogen atom, an alkyl group, a haloalkyl group, a hydroxyl group or -OSO₂-Rn₇, and Rn₇ represents

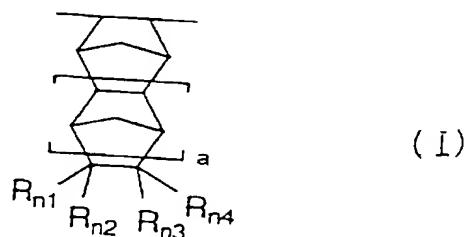
an alkyl group, a haloalkyl group, a cycloalkyl group or a camphor residue.

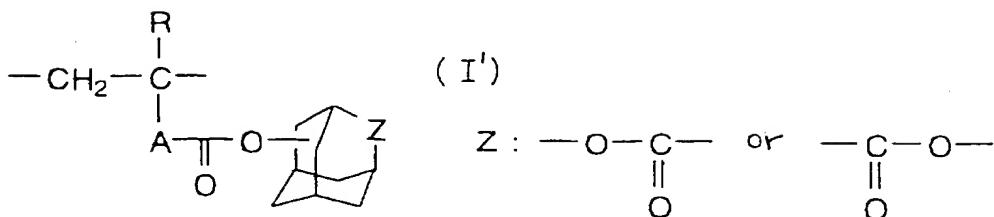
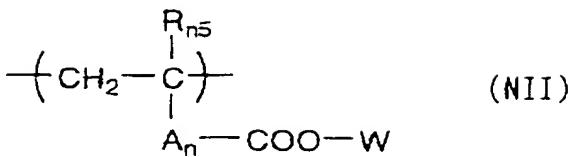
6. The positive photoresist composition according to claim 4, which further comprises (C) an organic basic compound and (D) a fluorine-type and/or silicon-type surfactant.

7. A positive photoresist composition comprising:

(A2) a resin which contains a repeating unit represented by the following general formula (I), a repeating unit represented by the following general formula (NII) and a repeating unit represented by the following general formula (I'), and whose dissolving rate toward an alkaline developing solution is increased by the action of an acid, and

(B) a compound which generates an acid upon irradiation with an actinic ray or a radiation,





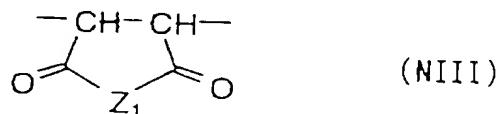
wherein in the formula (I), R_{n1} to R_{n4} each represents a hydrogen atom or an alkyl group which may have one or more substituents, and a is 0 or 1;

in the formula (NII), R_{n5} represents a hydrogen atom or a methyl group; A_n represents one group or a combination of two or more groups each selected from the group consisting of a single bond, an alkylene group, a cycloalkylene group, an ether group, a thioether group, a carbonyl group and an ester group; W represents a group represented by $-\text{C}(\text{R}_{na})(\text{R}_{nb})(\text{R}_{nc})$ or a group represented by $-\text{CH}(\text{R}_{nd})-\text{O}-\text{R}_{ne}$, wherein R_{na} , R_{nb} , and R_{nc} each represents a linear or branched alkyl group having 1 to 20 carbon atoms or an alicyclic hydrocarbon group which may have a halogen atom, an alkyl group, an alkoxy group, an alkoxy carbonyl group, an acyl group or an acyloxy group as a substituent, provided that R_{na} and R_{nb} may be bonded to each other to form an alicyclic

ring together with the carbon atom to which the groups are commonly attached and, in this case, R_{nc} is an alkyl group having 1 to 4 carbon atoms; R_{nd} represents a hydrogen atom or an alkyl group; R_{ne} represents a linear or branched alkyl group having 1 to 20 carbon atoms or an alicyclic hydrocarbon group which may have a halogen atom, an alkyl group, an alkoxy group, an alkoxy carbonyl group, an acyl group or an acyloxy group as a substituent; and

in the general formulae (I'), A represents one group or a combination of two or more groups each selected from the group consisting of a single bond, an alkylene group, a cycloalkylene group, an ether group, a thioether group, a carbonyl group and an ester group, and R represents a hydrogen atom, an alkyl group having 1 to 4 carbon atoms, a cyano group or a halogen atom.

8. The positive photoresist composition according to claim 7, wherein the resin (A2) further contains a repeating unit represented by the following general formula (NIII),



wherein Z₁ represents -O- or -N(R_{n6})-, wherein R_{n6} represents a hydrogen atom, an alkyl group, a haloalkyl

group, a hydroxyl group or $-\text{OSO}_2-\text{Rn}_7$, and Rn_7 represents an alkyl group, a haloalkyl group, a cycloalkyl group or a camphor residue.

9. The positive photoresist composition according to claim 7, which further comprises (C) an organic basic compound and (D) a fluorine-type and/or silicon-type surfactant.

10. The positive photoresist composition according to claim 1, wherein the content of the repeating unit represented by the general formula (I) is 25 to 70 mol% and the content of the repeating unit represented by the general formula (II) is 2 to 50 mol%, in the total repeating units.

11. The positive photoresist composition according to claim 1, wherein the resin (A) has a weight average molecular weight of from 1,000 to 1,000,000.

John A. Z.
12. The positive photoresist composition according to claim 1, wherein the content of the resin (A) is from 40 to 99.9% by weight relative to the total solid content in the photoresist composition.

13. The positive photoresist composition according to claim 4, wherein the content of the repeating unit represented by the general formula (I) is 25 to 70 mol%, the content of the repeating unit represented by the general formula (NII) is 2 to 50 mol%, in the total repeating units and the content of the repeating units represented by the general formulae (I-

1) to (I-4) is 1 to 30 mol%, in the total repeating units.

14. The positive photoresist composition according to claim 4, wherein the resin (A1) has a weight average molecular weight of from 1,000 to 1,000,000.

15. The positive photoresist composition according to claim 4, wherein the content of the resin (A1) is from 40 to 99.9% by weight relative to the total solid content in the photoresist composition.

16. The positive photoresist composition according to claim 7, wherein the content of the repeating unit represented by the general formula (I) is 25 to 70 mol%, the content of the repeating unit represented by the general formula (NII) is 2 to 50 mol%, in the total repeating units and the content of the repeating unit represented by the general formula (I') is 1 to 40 mol%, in the total repeating units.

17. The positive photoresist composition according to claim 7, wherein the resin (A2) has a weight average molecular weight of from 1,000 to 1,000,000.

18. The positive photoresist composition according to claim 7, wherein the content of the resin (A2) is from 40 to 99.9% by weight relative to the total solid content in the photoresist composition.